LEFT PARADUODENAL HERNIA: A RARE CASE REPORT AND DIAGNOSTIC CHALLENGE

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INTRODUCTION

Internal hernias are primarily caused by the intestine stretching through a mesenteric defect or peritoneum defect (1). They could be acquired or congenital. A rare congenital defect called a para duodenal hernia (PDH) is caused by a malrotation of the midgut (2). PDHs make up 53% of all internal hernias, making them the most frequent type (3). Because of the variability of the clinical signs, PDHs are challenging to identify (4). PDH may start as acute blockage or recurrent abdominal pain symptoms (43%), or it may remain asymptomatic for the duration of the patient's life. Of all internal hernias, between 10 and 50 percent are found after unrelated abdominal surgeries, imaging tests, or autopsies (5). An abdominal computed tomography scan performed before surgery is typically diagnostic, yet Frequently, the diagnosis is made during surgery. Both minimally invasive laparoscopic procedures and conventional open approaches can be used to undertake surgical treatments. Here, we report on an adult man's successful laparoscopic repair of a left PDH, as well as the preoperative radiological diagnostic.

CASE REPORT:

A 28-year-old male patient arrived at Casualty with c/o abdominal pain that persisted for one month after admission. This was linked to h/o abdominal distention for four days, h/o not passing stool for two days, and h/o bilious, non-projectile episodes of vomiting for two days.

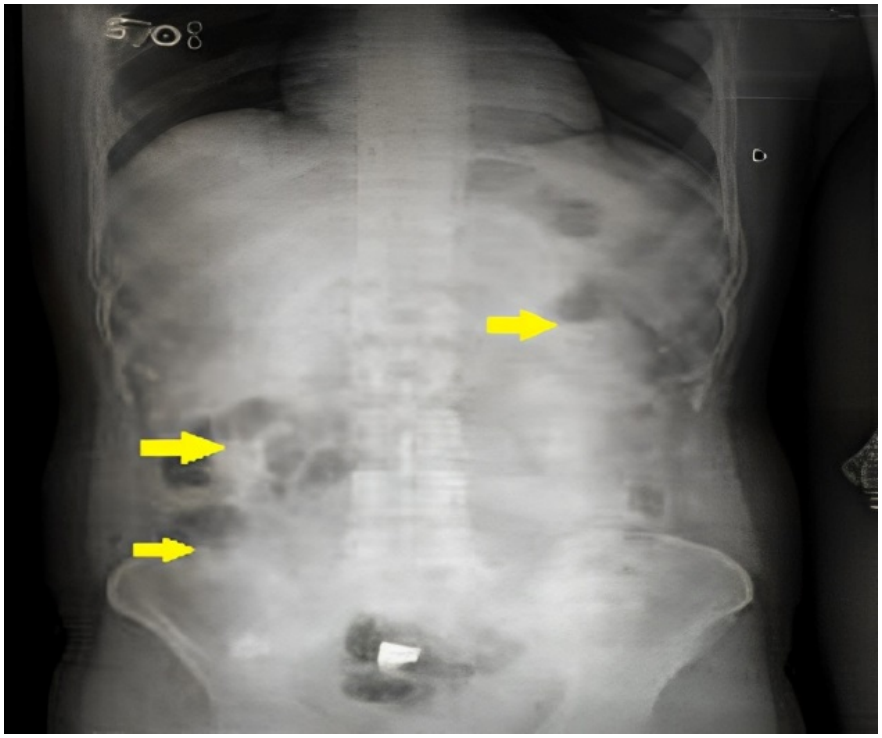
On clinical examination, the patient had a pulse rate of 110 bpm, and his blood pressure was recorded at 100/60 mm of hg. Abdominal examination revealed distention with generalized guarding and tenderness. On per rectal examination, fecal stains were present. On the contrary, all the laboratory parameters were within the normal range, viz. Haemogobin-11.4g/dl, Packed cell volume- 33%, Total leukocyte count- 9900 /µL, differential (Table 1).

Complete Blood Count

Parameter	**Results**	**Reference range**
Hemoglobin	11.4g/dl	Male-13.5-18g/dl Fe
Packed cell volume-	33%	Males-38.3-48.6% Fe
Total leukocyte count	9900 /µL	4500-11000/µL
Differential leucocyte count	Neutrophil-65%, Lymphocyte-33%, Eosinophils- 1%	Neutrophils-(55-70%
Platelet	2.4 lakhs	1.5-4.5 lakhs
Liver Function Test		
Parameter	**Results**	**Reference range**
Alanine Aminotransferase (ALT)	28 U/L	7 – 56 U/L
Aspartate Aminotransferase (AST)	20 U/L	8 – 33 U/L

Complete Blood Count		
Alkaline Phosphatase	58 U/L	44 -147 U/L
Total Bilirubin	0.8 mg/dL	0.1 -1.2 mg/dL
Total Bilirubin	0.5 mg/dL	0.1 – 1.2 mg/dL
Albumin	3.8 g/dL	3.4 -5.4 g/dL
Total Protein	6.8 g/dL	6.0 – 8.3 g/dL
Gamma-Glutamyl Transferase (GGT)	48 U/L	5 - 50 U/L
Kidney Function Test		
Parameter	**Results**	**Reference range**
Blood Urea Nitrogen (BUN)	14 mg/dL	7 – 20 mg/dL
Creatinine	0.8 mg/dL	0.6 – 1.2 mg/dL
Estimated Glomerular Filtration Rate (eGFR)	90Ml/min/1.73 m^2	90 – 125 mL/min/1
Uric Acid	3.8 mg/dL	3.5 -7.0 mg/dL
Sodium Na	138 mmol/L	135 – 145 mmol/L
Potassium K	3.9 mmol/L	3.6 -5.2 mmol/L
Chloride Cl	101 mmol/L	96 – 106 mmol/L
Bicarbonate HCO_3	24 mmol/L	22 – 32 mmol/L

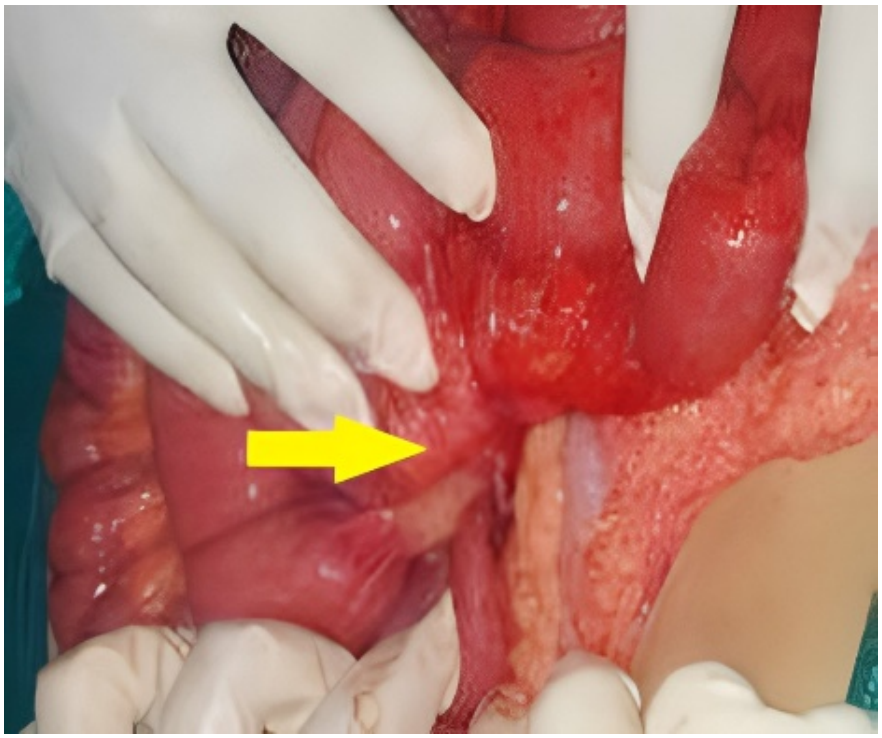
Table 1: Laboratory parameters of the patient.



Further, during the workup on radiological examination X – the ray abdomen was erect and showed distended bowel loops with few air-fluid levels in the right lumbar region (shown with yellow arrowheads), which was one of the positive findings of obstruction [Fig 1].

Figure 1: X-ray abdomen erect showed distended bowel loops with few air fluid levels.

USG pelvis and abdomen showed a few tiny bowel loops (jejunal) dilated, with a maximal diameter of 3.1 cm, exhibiting to and fro slow peristalsis in the left peri-umbilical (lumbar) region. There are only a few dilated small bowel loops with a maximum of 5 mm edematous thickness. However, a Doppler study demonstrated normal vascularity in the superior mesenteric vein and superior mesenteric artery. All the above findings were suggestive of closed loop small bowel obstruction and Para-duodenal hernia. Furthermore, the patient was scheduled for a contrast-enhanced CT scan (abdominal and pelvis). Findings were Distended small bowel loops (jejunum) with a max diameter of 2.9cm noted in the left paraumbilical region, which is surrounded by a sac containing mild fluid within with edematous bowel loops. There is no evidence of dilatation of proximal bowel loops and No evidence of free retroluminal air. The Mesentery surrounding the herniated bowel sac appears engorged with a twist in the mesentery f/s/o internal hernia, which is likely left paraduodenal hernia with the start of closed loop obstruction.



Patient was planned for emergency surgical exploration after all preoperative investigations. A midline incision was given, and exploration was done, which showed evidence of a 2.5cm defect in the mesentery near the fourth part of the duodenum, left paraduodenal hernia was seen through the mesentery with herniation of jejunal loops, and herniated loops were viable with active peristalsis seen. Constriction ring evident at 40 cm from Duodenojejunal flexure on jejunum, the ring formed at the site of rent in the mesentery [Figure 2-4].

Figure 2: 2.5 cm defect in mesentry near 4 th part of duodenum where jejunum is herniating (shown by arrow).

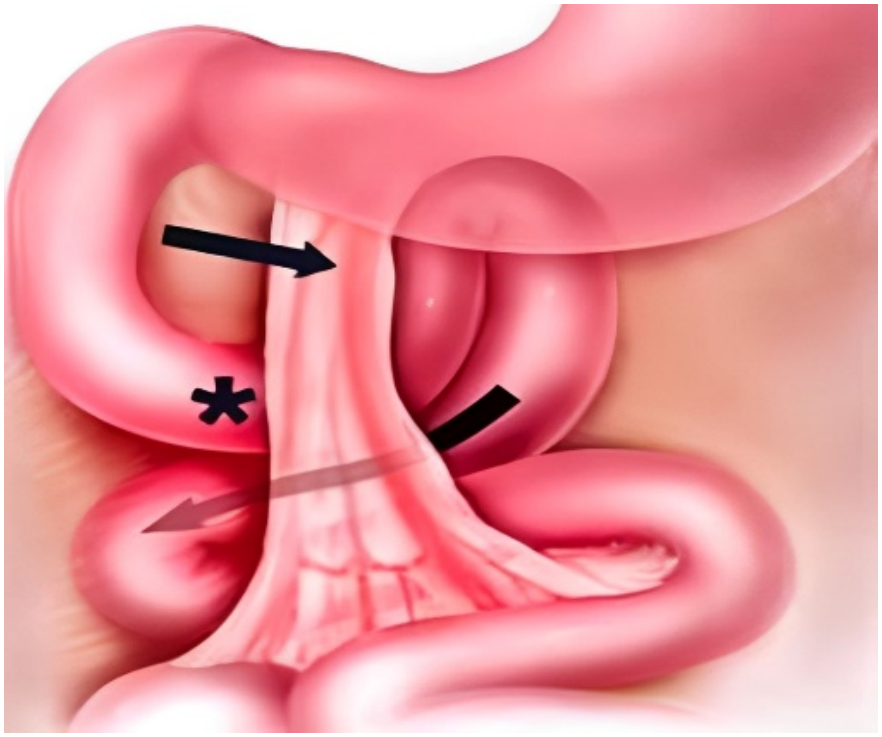


Figure 3*:* Paraduodenal hernias the mechanism explained (Source: Paraduodenal hernias are congenital internal hernias that usually present with non-specific symptoms, and are therefore rarely diagnosed preoperatively. Source: Falk GA, Yurcisin BJ, Sell HS, Left paraduodenal hernia: case report and review of the literature.*Case Reports* 2010;2010:bcr0420102936. BMJ Case Reports. https://casereports.bmj.com/content/2010/bcr.04.2010.2936).

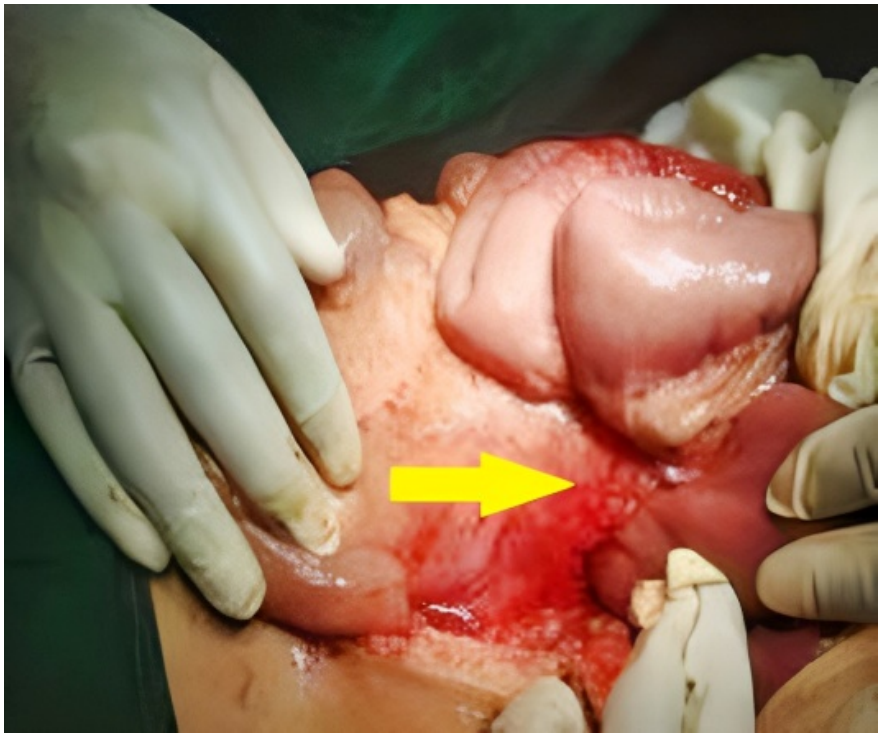


Figure 4: Mesentery defect sutured after reducing the content (shown by arrow).

The patient was managed aggressively during the postoperative period with IV fluids and injectable antibiotics and started oral sips on Postoperative day three and a full diet on Postoperative day four. He was discharged on Postoperative day 5. His stay in the postoperative ward was uneventful.

DISCUSSION:

When a paraduodenal hernia is discovered, surgery should be performed to treat it since there is a 50% lifetime chance of incarceration, which can result in bowel obstruction and strangling (4,6). Both minimally invasive laparoscopic procedures and traditional open approaches can be used to treat patients. Reduction of the entrapped intestinal loops, with resection, if necessary in the case of nonviable segments, and repair of the defect by either widening or closing the hernia orifice to allow the hernia sac to become a part of the general peritoneal cavity constitute the standard surgical approach for posterior superior hernias (2, 7-10). Usually, it is easy to diminish left PDH. Sutures are adequate to close the hernia opening. If reduction proves problematic, the hernia aperture is widened by dividing the IMV or making an incision along the descending mesocolon's avascular plane (2). Hernia sac excision is usually not required. A mesh can be used to remedy recurrent situations (3). In this instance, there was no need for IMV scarification or hernia sac expansion because the left PDH was readily minimized. It was sufficient to close the hernia orifice in its primary form.

CONCLUSION:

Paraduodenal hernia is a rare congenital entity, and clinical diagnosis of this condition requires a high level of suspicion. These patients frequently present with non-descript abdominal pain or intermittent obstruction, which can also be seen with other non-systolic motility disorders of the GI tract. In addition, the finding is not always evident when a physical examination and standard imaging are performed. Therefore, preoperative diagnosis is challenging and rarely made prior to surgery for acute small bowel obstruction. Imaging, including CT scans, has improved detection, but diagnosis of paraduodenal hernias early enough to prevent complications like bowel ischemia still demands a high index of suspicion. If undiagnosed it will lead to delayed surgical intervention, which can cause intestinal perforation, peritonitis, and even death.

Clinical suspicion, along with comprehensive radiological investigation, helps us make an accurate diagnosis and treatment.

Conflict of Interest: None

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